

*What is Claimed is:*

1. A method for testing telephone operation, the method comprising:  
connecting a call agent simulator to a network;  
5 applying call actions or events from the call agent simulator to the network that are  
expected to produce expected results in the network; and  
verifying the actual results produced compared to the expected results.
2. The method set forth in claim 1, further comprising:  
10 disconnecting the call agent simulator from the network; and  
connecting a call agent whose features are similar to the call agent simulator to the  
network.
3. The method of claim 1, wherein the call agent simulator includes a plurality of  
15 functions performed over the network.
4. The method of claim 3, further comprising extending the number of the functions.
5. The method of claim 1, wherein the call agent simulator uses a runtime interpretive  
20 language.
6. The method of claim 1, wherein the call agent simulator uses the PERL language.

7. The method of claim 1, wherein the verifying the actual results produced in the network relative to the expected results is performed by the call agent simulator without compiling or linking of the call agent simulator.
- 5 8. The method of claim 1, wherein the expected results occur in the network.
9. The method of claim 1, wherein the expected results occur in a communications gateway (CG) connected to the network.
- 10 10. A method to test or validate the operation of a call agent within a VoIP system, the method comprising:
- obtaining an original version of the call agent simulator; and
  - updating the call agent simulator by executing a new version.
- 15 11. The method of claim 10, wherein the updating the call agent simulator is performed without compiling or linking.
12. The method set forth in claim 10, wherein the new version relates to the operation of a communications gateway (CG).
- 20 13. An apparatus for testing Voice over Internet (VoIP) operations over a network, the apparatus comprising:
- a call agent simulator attached to the network;
  - the call agent simulator applying call actions or events to the network that are
- 25 expected to produce expected results in the network; and

means for verifying the actual results produced in the network relative to the expected results.

14. The apparatus of claim 13, wherein the call agent simulator further comprises:
- 5 a manager level application;
- a line object for each phone line supported by the call agent, each line object includes the attributes for that phone line; and
- a call agent protocol library that is used by each line object to set up attributes.
- 10 15. The apparatus of claim 14, wherein the manager level application is used to set up each line object.
16. The apparatus of claim 14, wherein the manager level application dynamically add new line objects.
- 15 17. The apparatus of claim 14, wherein the manager level application coordinates the line objects when making phone calls.
18. The apparatus of claim 14, wherein the line objects encapsulate call agent functions
- 20 when making phone calls.
19. A method of adding functionality to an existing call agent implementation comprising:
- coding a call agent simulator with simulator code to add the functionality;
- 25 operating the call agent simulator with the simulator code;

determining whether the code performs acceptably; and  
preparing the call agent to operate with agent code that is operatively similar to the simulator code.

- 5    20.    An apparatus for testing telephone operation, the apparatus comprising:
- means for connecting a call agent simulator to a network;
- means for applying call actions or events from the call agent simulator to the network that are expected to produce expected results in the network; and
- means for verifying the actual results produced compared to the expected results.

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